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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,200	09/11/2003	Gary C. Vanstone	EM-1991	9114
5179	7590	09/14/2005	EXAMINER	
PEACOCK MYERS, P.C. P O BOX 26927 ALBUQUERQUE, NM 87125-6927			NGUYEN, THONG Q	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/662,200

Applicant(s)

VANSTONE ET AL.

Examiner

Thong Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2005 and 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-13 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/31/2005 has been entered.

### ***Response to Amendment***

2. The present Office action is made in response to the amendment filed on 8/12/2005. It is noted that in the mentioned amendment, applicant has amended claims 1, 11 and 19. The pending claims 1-3, 5-13 and 15-20 (Note: claims 4 and 14 were canceled by applicant in the amendment filed on 3/3/2005) are examined in this Office action.

### ***Claim Rejections - 35 USC § 112***

3. The rejections of claims 1-3 and 5-10 under 35 USC 112, first paragraph are now overcome by the amendments to the claim 1 as set forth in the amendment filed on 8/12/2005.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-2, 5, 7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Draganov et al (U.S. Patent No. 6,667,831).

Draganov et al discloses a compact telescope having three mirrors (206, 204, 208). The telescope as described in columns 3-4 and shown in figure 2 comprises the following features: First, a primary mirror (206); a secondary mirror (204) and a tertiary mirror (208); Second, the primary and tertiary mirrors have a common vertex located at a junction/hole (210) defined by the primary and tertiary mirrors; Third, the primary mirror abuts the tertiary mirror; Fourth, the telescope has a common alignment axis (212) intersecting the vertex of the primary and tertiary mirror; and Fifth, the primary and tertiary mirrors are manufactured using diamond turning method from a single piece of equipment without realigning the equipment to obtain coincidental optical axes.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 3, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draganov et al in view of Wetherell et al (of record).

The telescope with three mirrors as provided by Draganov et al does not clearly disclose that the secondary mirror is able to tilt with respect to the common alignment axis and the telescope is used to form an image of an object onto a detecting system. However, the use of a telescope having three mirrors wherein the mirrors are used to form an image of an object onto a detecting system and the secondary mirror is able to tilt with respect to a common alignment axis is known to one skilled in the art as can be seen in the device provided by Wetherell et al.

In particular, Wetherell et al disclose an optical device having a set of mirrors for imaging distant objects. The device is able to operate in a range of different wavebands including infrared waveband (see column 4, lines 53+). The three mirrors as described in columns 3-4 and shown in figures 3-4 comprises a concave primary mirror (31), a convex secondary mirror (32) and a concave tertiary mirror (33) wherein the primary mirror and the tertiary mirror share a common vertex and all mirrors share a common axis (34) and wherein the common vertex of the primary and tertiary mirrors is located in a hole/junction defined by the two mentioned mirrors and the vertex is located on the optical axis

(34) of the three mirrors. It is noted that in column 4, lines 51+, Wetherell et al teach that the mirrors may be tilted or otherwise altered slightly from the rotational symmetry about the optical axis to achieve a desired level of image quality. The light from the distant object is guided to reflect on the three mirrors and then imaged onto the image plane (36) in which a sensor system is located (see column 3, lines 53+). The three mirrors with concave and convex configurations form an anastigmatic mirror system. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the telescope provided by Draganov et al by using at least one mirror of the mirror system and utilizing the telescope for forming an image of an object onto a detecting system as suggested by Wetherell et al for the purpose of obtaining an image of an object with better quality.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Draganov et al in view of Wetherell et al.

The combined product with three-mirror system as provided by Draganov et al and Wetherell et al does not disclose that the hole/junction defined by the primary and tertiary mirrors is used to receive a laser or a rod for the purpose of alignment the three mirrors and the primary and tertiary mirrors are diamond turned as a unit.

However, the feature related to the insertion of a rod and/or laser for an alignment purpose as recited in claim 6 is related to method steps for alignment the three mirrors, and thus is not given a patentable weight as decided in the

Courts which decides that a method step in an apparatus claim is not given a patentable weight.

9. Claims 11-12, 15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wetherell et al.

Draganov et al discloses a compact telescope having three mirrors (206, 204, 208). The telescope as described in columns 3-4 and shown in figure 2 comprises the following features: First, a primary mirror (206); a secondary mirror (204) and a tertiary mirror (208); Second, the primary and tertiary mirrors have a common vertex located at a junction/hole (210) defined by the primary and tertiary mirrors; Third, the primary mirror abuts the tertiary mirror; Fourth, the telescope has a common alignment axis (212) intersecting the vertex of the primary and tertiary mirror; and Fifth, the primary and tertiary mirrors are manufactured using diamond turning method from a single piece of equipment without realigning the equipment to obtain coincidental optical axes.

While Draganov et al do not clearly set forth a method for making their three-mirror system; however, it would have been obvious to one skilled in the art at the time the invention was made to set forth a set of steps including the step of preparing three mirrors in an order for imaging light from distant objects to a sensor system disposed at the image plane of the three mirrors arranged in such an order, and the step of employing the vertex common to the primary and tertiary mirrors at a junction of the mentioned mirrors at their junction which is located on the optical axis/rotational symmetric axis of the three mirrors.

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and tilting any mirror as necessary to achieve a desired level of image quality.

10. Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draganov et al in view of Wetherell et al.

The telescope with three mirrors as provided by Draganov et al does not clearly disclose that the secondary mirror is able to tilt with respect to the common alignment axis and the telescope is used to form an image of an object onto a detecting system. However, the use of a telescope having three mirrors wherein the mirrors are used to form an image of an object onto a detecting system and the secondary mirror is able to tilt with respect to a common alignment axis is known to one skilled in the art as can be seen in the device provided by Wetherell et al.

In particular, Wetherell et al disclose an optical device having a set of mirrors for imaging distant objects. The device is able to operate in a range of different wavebands including infrared waveband (see column 4, lines 53+). The three mirrors as described in columns 3-4 and shown in figures 3-4 comprises a concave primary mirror (31), a convex secondary mirror (32) and a concave tertiary mirror (33) wherein the primary mirror and the tertiary mirror share a common vertex and all mirrors share a common axis (34) and wherein the common vertex of the primary and tertiary mirrors is located in a hole/junction defined by the two mentioned mirrors and the vertex is located on the optical axis (34) of the three mirrors. It is noted that in column 4, lines 51+, Wetherell et al teach that the mirrors may be tilted or otherwise altered slightly from the



rotational symmetry about the optical axis to achieve a desired level of image quality. The light from the distant object is guided to reflect on the three mirrors and then imaged onto the image plane (36) in which a sensor system is located (see column 3, lines 53+). The three mirrors with concave and convex configurations form an anastigmatic mirror system. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the telescope provided by Draganov et al and Wetherell et al by providing a set of steps including the step of preparing three mirrors in an order for imaging light from distant objects to a sensor system disposed at the image plane of the three mirrors arranged in such an order, and the step of employing the vertex common to the primary and tertiary mirrors at a junction of the mentioned mirrors at their junction which is located on the optical axis/rotational symmetric axis of the three mirrors and tilting any mirror as necessary to achieve a desired level of image quality at a detecting system.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Draganov et al in view of Wetherell et al as applied to claim 11 above and further in view of Chan et al (of record).

The three-mirror system as provided by Draganov et al and Wetherell et al does not disclose that the hole/junction defined by the primary and tertiary mirrors is used to receive a laser or a rod for the purpose of alignment the three mirrors and the primary and tertiary mirrors are diamond turned as a unit.

However, the concept of placing the primary and tertiary mirrors on a common substrate and then produced them by a diamond turned process and then using a device utilizing laser for alignment the three mirrors is suggested to one skilled in the art as can be seen in the method for producing three mirrors provided by Chan et al. See columns 6-7. While Chan et al do not suggest that the laser or rod is placed in the hole/junction defined by the primary and tertiary mirrors; however, one skilled in the art will recognize that (s)he can position the rod or an alignment system at the hole/junction defined by the primary and tertiary mirrors in the three-mirror system of the combined product provided by Draganov et al and Wetherell et al for the purpose of alignment the three mirrors due to the convenience and reducing the time of alignment.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Draganov et al in view of Wetherell et al as applied to claim 11 above and further in view of Pinson (of record).

The optical device having three mirrors wherein the primary mirror and the tertiary mirror share a common vertex and all mirrors share a common axis as provided by Draganov et al and Wetherell et al does not disclose that the secondary mirror is able to move for the purpose of focusing. However, the use of an optical device having a primary system and a secondary system for receiving and guiding light from an object to a receiving system wherein either the receiving system or the secondary system is moved for the purpose of focusing is known to one skilled in the art as can be seen in the optical device

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provided by Pinson. In particular, in column 3 and claim 3, Pinson discloses the movement of the secondary mirror for the purpose of adjusting the focus of the system. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the optical system provided by Draganov et al and Wetherell et al by moving the secondary mirror as suggested by Pinson for the purpose of focusing.

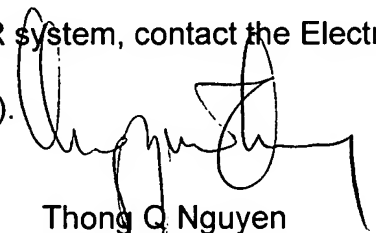
### ***Conclusion***

13. The U.S. Patent No. 6,409,352 is cited as of interest in that it discloses a plurality of mirrors wherein the primary mirror and the tertiary mirror are connected to each other.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q Nguyen whose telephone number is (571) 272-2316. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thong Q. Nguyen  
Primary Examiner  
Art Unit 2872

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